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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,926	03/30/2001	Hisashi Tsujimoto	09792909-4817	8279

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 05/01/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,926

Applicant(s)

TSUJIMOTO ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 6-17 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 6-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1, 2, and 6-17. Claim 17 is newly withdrawn herein as being drawn to a nonelected invention. While claims 1 and 16 were amended to include the limitations of cancelled claims 3-5, the ground of rejection applied to original claim 3 remains applicable and is maintained herein. Accordingly, this action is made final.

Priority

2. The foreign priority claim filed on March 24, 2003 was not entered because the foreign priority claim was not filed during the time period set forth in 37 CFR 1.55(a)(1). For original applications filed under 35 U.S.C. 111(a) (other than a design application) on or after November 29, 2000, the time period is during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior foreign application. For applications that have entered national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the claim for priority must be made during the pendency of the application and within the time limit set forth in the PCT and the Regulations under the PCT. See 37 CFR 1.55(a)(1)(ii). If applicant desires priority under 35 U.S.C. 119(a)-(d), (f) or 365(a) based upon a prior foreign application, applicant must file a petition for an unintentionally delayed priority claim (37 CFR 1.55(c)). The petition must be accompanied by (1) the claim (i.e., the claim required by 35 U.S.C. 119(a)-(d)

and (f) and 37 CFR 1.55) for priority to the prior foreign application, unless previously submitted; (2) a surcharge under 37 CFR 1.17(t); and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.55(a)(1) and the date the claim was filed was unintentional. The Commissioner may require additional information where there is a question whether the delay was unintentional. The petition should be directed to the Office of Petitions, Box DAC, Assistant Commissioner for Patents, Washington, DC 20231.

Currently, the instant application only properly claims priority to Japanese application no. 2000-093378.

Election/Restrictions

3. Newly amended claim 17 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claim 17 has been amended to be directed to “[a] method for making a material.” This method is patentably distinct from the products defined in claims 1, 2, and 6-16. The process and the product are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process does not require the specific elements required by the product. In addition, the product is classified in 429/231.1, whereas the process is classified in 423/593.1.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 17 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

4. Claims 1, 2, and 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/59214 in view of Fujimoto et al (U.S. Patent 5,683,834).

Regarding claim 1, the WO '214 reference is directed to a nonaqueous electrolyte secondary battery (see page 1, lines 1-6). Regarding claims 1 and 16, the positive electrode contains a complex oxide of manganese, lithium, and cobalt, and a complex oxide of nickel, lithium, and cobalt (see page 15, lines 23-25). Regarding claims 1, 6, and 16, the oxides have the formulas $\text{Li}_x\text{Co}_y\text{Mn}_{2-y}\text{O}_4$ ($0 < y < 0.6$) and $\text{LiNi}_x\text{Co}_{1-x}\text{O}_2$ ($0 < x < 1$), respectively (see page 15, lines 23-25). For example, the manganese oxide may comprise $\text{Li}_2\text{Co}_{0.2}\text{Mn}_{1.8}\text{O}_4$ (page 16, line 28), and the nickel oxide may comprise $\text{LiNi}_{0.5}\text{Co}_{0.5}\text{O}_2$. Thus, the claimed formulas and subscript ranges are anticipated. Regarding claim 2, the manganese oxide may be present in an amount of 20-98% by weight of the total electrode structure, and the nickel oxide may be present in an amount of 1-79% (see page 15, lines 23-25). Regarding claims 8-10, the negative electrode contains a material capable of occluding and releasing lithium (e.g., graphite, coke, or carbon black; see page 15, lines 18-20). Regarding claims 9, 11, and 12, the negative electrode may also

contain an alloy of lithium and a Group 4B element such as Sn or Si (see page 15, line 20; page 3, lines 6-19). Regarding claim 14, the electrolyte contains a salt and a solvent such as ethylene carbonate, propylene carbonate, or diethyl carbonate (see page 16, lines 18-23).

The WO '214 reference does not expressly teach that the mean particle size of the positive active material is 30 microns or below, as recited in claim 1. The reference further does not teach that the cell is spirally wound through a microporous separator and that the electrode layers are coated on both sides of their respective current collectors (claims 7 and 13), or that the electrolyte is solid or gelled (claim 15).

The patent of Fujimoto et al. is directed to a spirally-wound nonaqueous cell. The separator/electrolyte element may be comprised of a microporous separator, a gelling polymer containing the electrolytic solution, or an inorganic solid electrolyte (see col. 14, line 42 et seq.). Both sides of each current collector are coated with the respective active material (see abstract). The positive electrode active material (e.g., a nickel or manganese lithium oxide) preferably has an average particle size of from 0.1 to 50 microns (see col. 11, lines 52-55 and col. 12, lines 15-17).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to incorporate the double-sided, spirally-wound electrode configuration of Fujimoto et al. into the battery of WO '214. In the abstract, Fujimoto et al. teach that "the battery is excellent in charge and discharge cycle characteristics, and the sheet electrodes have excellent winding properties when

rolled up into cylinders.” Accordingly, the artisan would be motivated the double-sided, spirally-wound electrode configuration of Fujimoto et al. into the battery of WO ‘214.

Additionally, the artisan would be motivated to incorporate any of the electrolyte/separator configurations of Fujimoto et al. into the battery of WO ‘214. Fujimoto et al. describe these configurations as “suitable” for use in the battery. Accordingly, the artisan would be motivated to use one of these configurations in the battery of WO ‘214.

Finally, regarding the mean particle size range of 30 microns and below recited in claim 1, Fujimoto’s disclosure of 0.1-50 microns is considered to render this limitation obvious. The disclosure of Fujimoto et al. sufficiently guides the artisan to use a particle size of 30 microns or less. Furthermore, it is known that a smaller particle size results in increased electrochemical activity. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Response to Arguments

5. Applicant’s arguments filed March 24, 2003 have been fully considered but they are not persuasive. Applicants assert that “the problem to be solved of Fujimoto is different from the problem of the current invention. The solution Fujimoto proposes is different form the solution posited by the current invention.” In response, it is noted that the references do not have to be concerned with the particular problem that Applicants were concerned with. The reason or motivation to modify the reference may often suggest what the inventor has done, but for a

Art Unit: 1746

different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); MPEP §2144.

Applicants further assert that “the Examiner may not simply pluck the Fujimoto particle size and combine it with the WO reference without any motivation or suggestion to do so.” In response, as noted above, the particle size of an electrode material has been recognized by the prior art as being a result effective variable (i.e., a smaller particle size results in increased electrochemical activity). As evidence of this recognition, the following passage (col. 2, line 54 et seq.) from Bi et al (U.S. Patent 5,952,125) is cited:

Vanadium oxide particles have been produced having
45 diameters less than a micron with vanadium in a variety of
oxidation states and with a variety of lattice structures. The
small size of the particles results in a significantly increased
surface area for a given weight of material. Appropriate
vanadium oxide nanoparticles incorporated into a cathode
50 for a lithium based battery exhibit a significantly increased
energy density relative to comparable materials of larger
particle size.

Accordingly, the artisan would have sufficient motivation to use a small particle size, e.g., less than 30 microns, as disclosed by Fujimoto et al., in the electrode material of WO '214.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

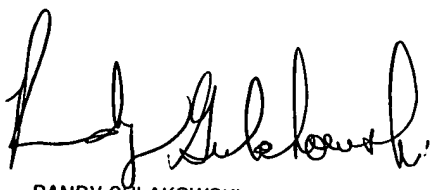
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

April 21, 2003


RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
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